



A.D. 1844 N° 10,287.

SPECIFICATION

OF

JULIUS JEFFREYS.

RESPIRATORS.

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JEFFREYS' SPECIFICATION.

TO ALL TO WHOM THESE PRESENTS SHALL COME, I, JULIUS JEFFREYS, of Clapham, in the County of Surrey, Gentleman, send greeting.

WHEREAS Her present most Excellent Majesty Queen Victoria, by Her Letters Patent under the Great Seal of Great Britain, bearing date at Westminster, the Sixth day of August, in the eighth year of Her reign, did, for Herself, Her heirs and successors, give and grant unto me, the said Julius Jeffreys, Her especial licence, full power, sole privilege and authority, that I, the said Julius Jeffreys, my exors, admors, and assigns, or such others as I, the said Julius Jeffreys, my exors, admors, or assigns, should at any
10 time agree with, and no others, from time to time and at all times during the term of years therein expressed, should and lawfully might make, use, exercise, and vend, within England, Wales, and the Town of Berwick-upon-Tweed, my Invention of "IMPROVEMENTS IN RESPIRATORS;" in which said Letters Patent is contained a proviso that I, the said Julius Jeffreys,
15 shall cause a particular description of the nature of my said Invention, and in what manner the same is to be performed, to be inrolled in Her said Majesty's High Court of Chancery within six calendar months next and immediately after the date of the said in part recited Letters Patent, as in and by the same, reference being thereunto had, will more fully and at large appear.

20 NOW KNOW YE, that in compliance with the said proviso, I, the said Julius Jeffreys, do hereby declare that the nature of my said Invention, and the manner in which the same is to be performed, are fully described and ascertained in and by the following statement thereof, reference being had to the Drawing hereunto annexed, and to the figures and letters marked thereon,
25 (that is to say):—

Jeffreys' Improvements in Respirators.

Whereas, in the month of January, One thousand eight hundred and thirty-six, I obtained a Patent for Certain Improvements in Curing or Relieving Disorders of the Lungs, I have now to specify certain additional improvements for the same. These are, first, improvements upon the oral and orinasal respirators hitherto in use, which consist in a construction of these respirators 5 in such a manner that each one instrument may have its power increased or decreased by having a portion or the whole of the operative part removeable from the mountings, so that by the addition or subtraction of plates or layers the effect may be increased or decreased at will. Thus, instead of separate and distinct instruments being needed for obtaining the several degrees of 10 climate or of power, the same layers which operate in the low power form a portion of those acting to produce a medium, and these a portion of those producing the high power, so that within the same materials are comprised varieties of effect, each of which hitherto required separate instruments.

Figure 1 shews an oral respirator as now constructed, of low power. 15 Figure II. is a packet of one or more layers of the operating material, which is arched to fit closely on the convex surface *a, a*, Figure I., and bound down by the tie *b, b*, &c. The instrument is then of increased power. To give a higher power still, either another packet, Figure III., is superadded to the former, or a single one, Figure IV., consisting of more layers, is substituted 20 for it. To produce a still further effect, two or more packets are placed together upon the convex surface of the instrument, and secured by the tie, and then screened by the usual shawl covering. This instrument I name the respirator of all powers in one, and this improvement applies to both the oral and the orinasal kinds. In the instrument Figure I., just described, it will 25 be seen that one portion of the operative part *a, a, a*, is inseparably fixed to the mouth fittings; but I now also make the respirator as shewn in Figure 5, which consists of a flexible metal frame, containing a large oblong space or aperture *o, o, o*, and fitted on one side with pads at either end *A, A*, and lip-tucks *B, B*, to form together the usual mouthpiece, and on the other side with 30 an edging *c, c, c, c*, of flexible material, which forms a receptacle, into which the whole or a part of the operative packets may be placed, and then laced in with the cord *b, b, b, b*, or fixed in in any other manner. Thus, all the operative part may be detached from the fittings for the purpose of cleaning, repairing, or exchanging it. Now this arrangement, by which the operative 35 part of either the oral or orinasal respirator can be detached from the mouth-piece and other fittings at will, without the employment of a stiff inflexible frame to carry the fittings and receive the acting part, and without the latter being given an inflexible stiffness by encasing with metal, is quite novel, and

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of much importance to the comfort of the wearer. In the new arrangement both the acting portion, Figure IV., and the case which receives it, Figure V., and carries the fittings, are flexible in their entire length, so that they may be bent to suit the form of any mouth and jaws, even when the whole is fixed
 5 together. This combination of flexibility, both of the case and the instrument or operative part with seperability from each other, I claim as new and important; and, as any number of packets or layers can be employed, this is also a respirator of all powers in one.

My next improvement is the construction of a nasal respirator, an instrument adapted for the nostrils only. Though hitherto not attempted, this has been found practicable in the following construction:—Figures VI. and VII. are a case for the nose, of flexible material, so formed as to apply itself well by the margin *a, a, a, a*, padded with velvet or leather, &c. to the upper and outside surface of the nose, where it is supported by the nasal bones; and at
 15 the sides it applies itself to the cheek, near the nose, being spread out below so as not to touch the soft alæ of the nose, lest they should be compressed at all, to the obstruction of the passage of air into the nostrils. This nose cap is made as little pervious to air as possible, and its lower margin terminates in a firm frame or edge of a semi-oval form *C, C*, &c., Figures VI. and VIII., but
 20 concave behind *C¹*, VII. and VIII., to fit the middle of the upper jaw, below the nose. This frame is made deep enough as at *C¹*, Figure VIII., to carry any requisite number of the metallic or other operative layers, which, when heaped together, Figure IX., are kept a minute distance from each other by a thickened margin round each. These layers or plates exactly fit into
 25 the framed margin *C, C, C*, Figure VIII., and are kept in by the fine cord *f, f*, buttoned on *h, h*. *b, b, b*, Figures VI., VII., and VIII., are ribbons with elastic bands, which are tied round the head to give support to the respirator. When the nasal respirator is on, a person breathes in and out through the apertures or perforations in the operative part of the instrument,
 30 the breath passing through the several layers successively. The nose cap so well fits the parts to which its margin is applied as to admit no leakage of air, and it is made expansible to fit all forms of visage. In this instrument the power is likewise variable in any degree desired on the same principle as in the oral of all powers above described. One or more layers of porous
 35 woollen or other fabric may be introduced between some of the metallic layers, having been soaked previously in a medicated solution, by the evaporation of which an effect may be produced upon the nerves of the membrane of the nose and throat.

Now although the above I consider to be the best form of the nasal

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respirator, it may be given others. I claim, therefore, any instrument adapted to the nostrils only, composed of any material, but especially of metal, the action or object of which is to modify, or temper, or medicate the air inhaled through the nostrils.

My next improvement is the construction of a respirator which I name the hand respirator, and which is also of an entirely new form. This instrument is not necessarily attached or suspended in any way to the face, though it may be, but is chiefly intended to be held in the hand.

Figures X., XI., and XII. are a "hand respirator," of what I consider the best form, though it may be given other shapes, and be constructed differently.

Figure XIII. A, and B, are two packets of the operative material, each comprizing several layers or plates kept a small distance apart by intervening threads, or in any other suitable manner. These packets meet each other at the bottom O, Figures XIII. and XII., but diverge, leaving a wedge-shape space between them *e, e*, Figure XIII., which at top *e*¹ is about half an inch wide, and there ends in a mouthpiece *m, m*, &c., Figures X., XI., and XII. This, when applied to the mouth, conveys the breath obliquely down into the wedge-shape cavity. The breath there divides itself into two currents, the one passing out backwards through the packet A, and the other forwards through the front packet B. So, likewise, the entering air is formed of two currents flowing through the front and the back packets, which meet in the wedge-shape space *e, e*, and then pass on to the mouth.

Figure X. is a front view of the hand respirator; Figure XI. is a back view, or of that side next the mouth. The body of the instrument itself may be held in the hand or supported by a handle, which may be moveable or may occasionally be suspended to the collar of the dress, or in any other manner. Now, though I consider this the best form for a hand respirator, it may be given various other forms, as that of a cylinder, or cone, &c., and the operative part may be made of other material, but it ought, in part at least if not wholly, to consist of metal. I therefore claim the exclusive right to any material of this nature, namely, having a mouthpiece or tube communicating with the mouth and leading to an acting portion which does not lie in front of the mouth, but is dependent below the mouth, whether supported by the hand or not, though more especially when it is supported by the hand of the wearer.

My last improvement consists in the employment, as occasion requires, of forms of metal work for the operative parts of respirators different from the soldered wires hitherto used. One of these is a fabric of the nature of wire gauze, but so made as to have the warp and the woof at unequal distances from

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each other, the wires or threads of the one being further apart than those of the other. The object of this is that there may be few horizontal bars to check the descent of the moisture condensed from the breath; the interstices in this wove or platted fabric are of an elongated form from above downwards, but of minute lateral dimension. For some forms of respirators I also employ fine wire gauze of an ordinary character, and thin plates of perforated silver, gold, or platinum, or other metal; also plates of copper or other readily oxydizable metal, which, after perforation, has been coated by the electro-metallurgic or other process with silver, gold, or other precious metal, so that the edges of the orifices become coated with the precious metal, as well as the general surface; and I also propose the employment both of plates of the wired frames I have hitherto used, and of wove or platted wire fabric or gauze, which after manufacture into such frame, or fabric, or gauze, have been coated by such or any other processes with precious metal.

None of the above-named manufactures having been employed as yet, or proposed for the operative parts of respirators, I claim the sole right to the use of them, and I define a respirator to be an instrument to be adapted to the mouth or nostrils (as now proposed), or to both passages, for favoring respiration, by tempering or modifying the air respired, by giving to it warmth and moisture derived from the exhaled breath, whereby disorders of the lungs are prevented, relieved, or cured.

In witness whereof, I, the said Julius Jeffreys, have hereunto set my hand and seal, this Twenty-ninth day of January, in the year of our Lord One thousand eight hundred and forty-five.

25

JULIUS (L.S.) JEFFREYS.

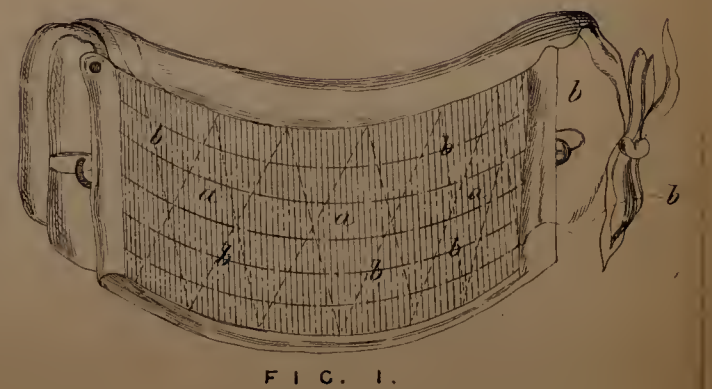
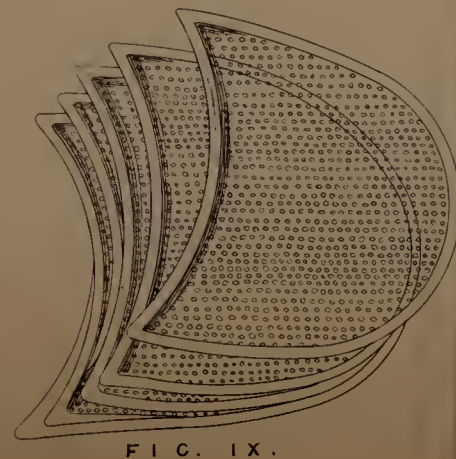
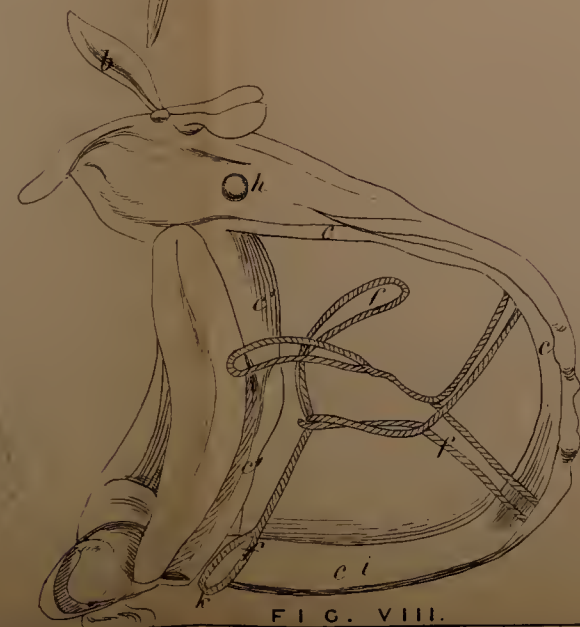
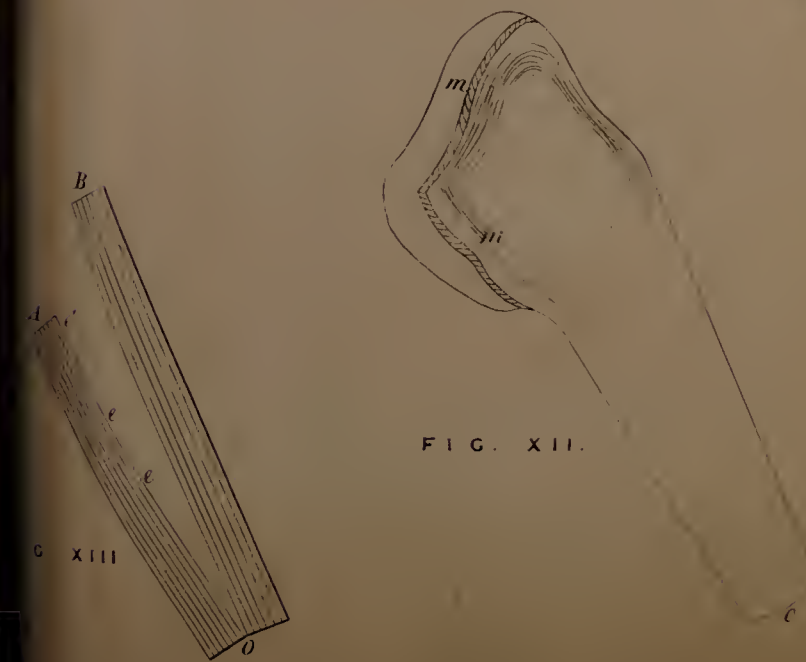
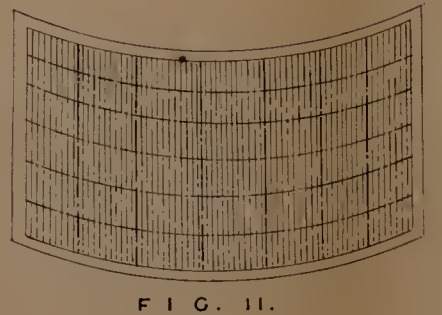
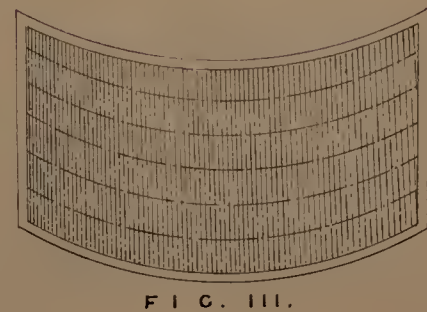
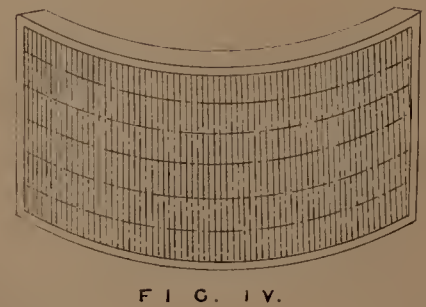
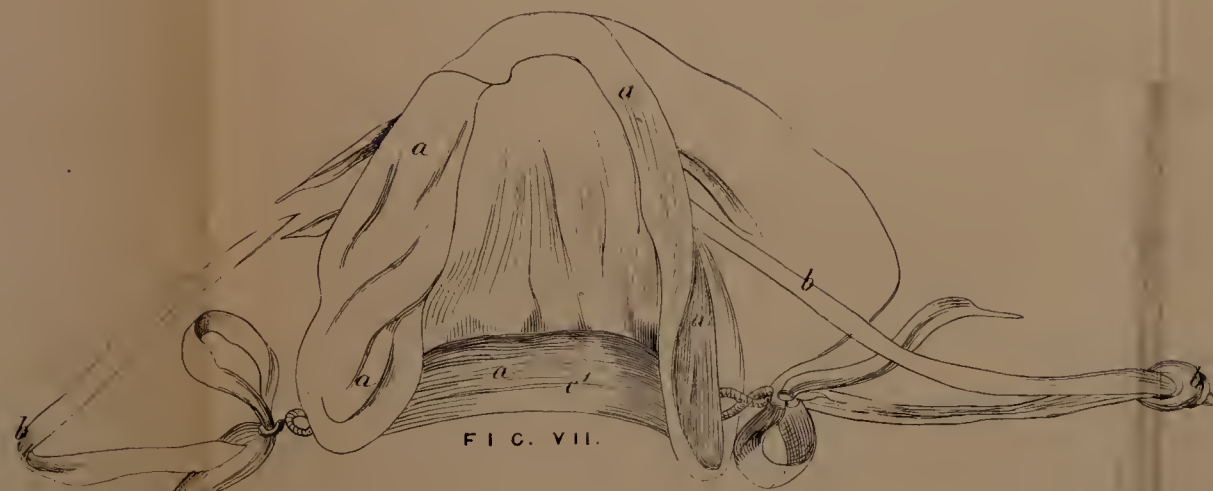
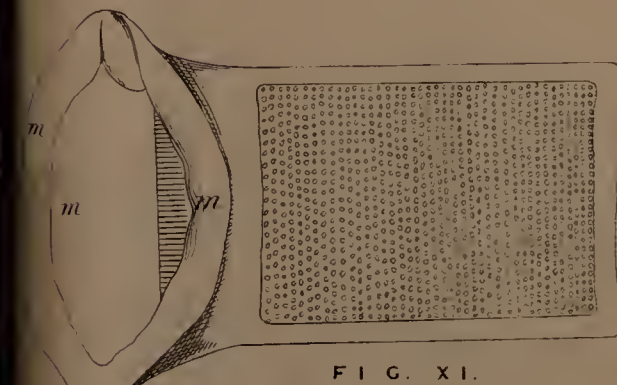
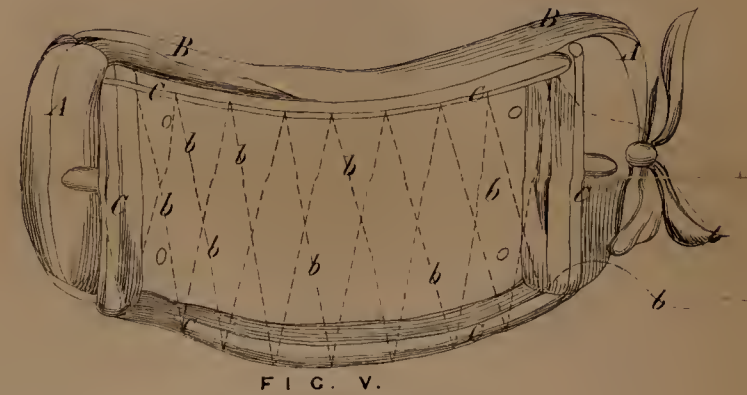
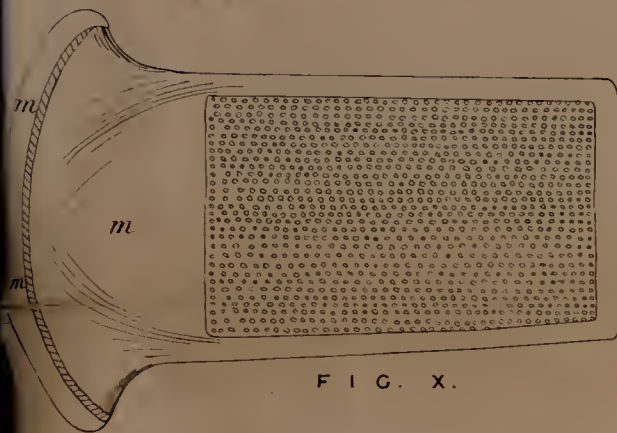
AND BE IT REMEMBERED, that on the Twenty-ninth day of January, in the year of our Lord 1845, the aforesaid Julius Jeffreys came before our said Lady the Queen in Her Chancery, and acknowledged the Specification aforesaid, and all and every thing therein contained and specified, in form above written. And also the Specification aforesaid was stamped according to the tenor of the Statute made for that purpose.

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Enrolled the Sixth day of February, in the year of our Lord One thousand eight hundred and forty-five.

LONDON:

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Enrolled drawing is partly colored.

Drawn on Stone by M. A. E. ns

